7 years earlier

Jonathan sat there while his Mercedes S-Class with DRIVE PILOT drove him across the Brooklyn Bridge to Wall Street. He had been working at Operant Capital for 10 years. The idea was simple. Predict the market, trade based on those predictions, and get rich. The implementation however, was not as simple as the idea.

The market doesn't work like physics. The market moves based on the thoughts and feelings of billions of humans, and they were all trying to do this same prediction thing. That's what made the economy. Everyone was basically doing this algorithm on some level. And even worse, this was a Red Queen's race, where the tactics that worked last year didn't work this year. Everyone was predicting everyone else predicting the market.

Except everyone was not as smart as Jonathan. He was a child prodigy. He got his first IMO Gold when he was 14. He graduated from MIT in 3 years. And he wanted a job where he was surrounded by other people as smart as him.

He'd been working on the RPS project for the last three years. As one of the more senior people there, he got to work on the more speculative research. Operant was blessed with basically an unlimited budget; the bounties of providing a valuable capital allocation service to the market.

Jonathan believed in the mission. Well, mostly anyway. Make markets more efficient. They weren't a high frequency trading shop skimming pennies off of each transaction by being fast. They weren't doing arbitrage. They were a market intelligence service. They knew where capital should be allocated before the market did, and in the grand scheme of things, they charged so little for their service.

Most of the tricks were standard. The same run of the mill models everyone in the industry was using. But they felt that their differentiator was always remembering that the market doesn't obey physical laws. Technical analysis is complete bullshit. This is a simple betting game played against other agents.

Which is the line of thinking that led to the RPS project. RPS stood for rock-paper-scissors. A game with a simple Nash equilibrium. One-third, one-third, one-third. Deviate at all from that strategy, and your opponent can exploit you. But if your opponent isn't playing that strategy, you have to deviate to *exploit them*.

Shortly after MRI machines were invented, people started using them to see if they could read minds. They'd put someone in an MRI and give them two buttons, say a red and a blue. Of course the machine knew which button you would press before you pressed it. But what was crazier is that the machine knew which button you would press *before you were even aware of your choice*.

The obvious follow up question is, how much before? Seconds was very believable. But could you know as soon as the subject walked in the room? At the time there wasn't really a way to explore this. Aside from the 55% prior on red, there wasn't much more to say.

Rock-paper-scissors was basically the same game. Humans do have unequal priors, preferring rock at 35.4%. But is it possible that someone was a scissors type guy? Maybe you could read their social media posts and tell. Maybe you could just tell by looking at their face.

The goal of the RPS project was to become perfect at rock-paper-scissors. And the results were very promising. The computer had a win rate of 86%, with a first round win rate of 54%. Once you were playing multiple games it was easy, but Jonathan was particularly proud of the first round win rate.

However, 54% wasn't close to 100%. It was better than random, sure. But this showed diminishing returns. Maybe the data just wasn't there. Maybe you had to look inside to spot a scissors type guy.

The new research direction was outfitting the room with SQUIDs, very sensitive magnetometers capable of measuring fields in the femtotesla range. The rules for the project disallowed things that were obvious and bulky like MRIs. But anything that could be put in a normal room was fair game.
